

CLAIMS

1. Protein having at least a portion of the sequence SEQ ID N° 3 following :

5 Asp Pro Glu Pro Ala Pro Pro Val Pro Thr Thr Ala Ala Ser Pro  
Pro Ser Thr Ala Ala Ala Pro Pro Ala Pro Ala Thr Pro Val Ala  
Pro Pro Pro Pro Ala Ala Ala Asn Thr Pro Asn Ala Gln Pro Gly  
Asp Pro Asn Ala Ala Pro Pro Pro Ala Asp Pro Asn Ala Pro Pro  
Pro Pro Val Ile Ala Pro Asn Ala Pro Gln Pro Val Arg Ile Asp  
Asn Pro Val Gly Gly Phe Ser Phe Ala Leu Pro Ala Gly Trp Val  
10 Glu Ser Asp Ala Ala His Phe Asp Tyr Gly Ser Ala Leu Leu Ser  
Lys Thr Thr Gly Asp Pro Pro Phe Pro Gly Gln Pro Pro Pro Val  
Ala Asn Asp Thr Arg Ile Val Leu Gly Arg Leu Asp Gln Lys Leu  
Tyr Ala Ser Ala Glu Ala Thr Asp Ser Lys Ala Ala Ala Arg Leu  
Gly Ser Asp Met Gly Glu Phe Tyr Met Pro Tyr Pro Gly Thr Arg  
15 Ile Asn Gln Glu Thr Val Ser Leu Asp Ala Asn Gly Val Ser Gly  
Ser Ala Ser Tyr Tyr Glu Val Lys Phe Ser Asp Pro Ser Lys Pro  
Asn Gly Gln Ile Trp Thr Gly Val Ile Gly Ser Pro Ala Ala Asn  
Ala Pro Asp Ala Gly Pro Pro Gln Arg Trp Phe Val Val Trp Leu  
Gly Thr Ala Asn Asn Pro Val Asp Lys Gly Ala Ala Lys Ala Leu  
20 Ala Glu Ser Ile Arg Pro Leu Val Ala Pro Pro Pro Ala Pro Ala  
Pro Ala Pro Ala Glu Pro Ala Pro Ala Pro Ala Gly Glu  
Val Ala Pro Thr Pro Thr Thr Pro Thr Pro Gln Arg Thr Leu Pro  
Ala

2. Protein according to claim 1 characterized in that it  
25 has at least a portion of the sequence SEQ ID N° 2 following :

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Met His Gln Val Asp Pro Asn Leu Thr Arg Arg Lys Gly Arg Leu  
 Ala Ala Leu Ala Ile Ala Ala Met Ala Ser Ala Ser Leu Val Thr  
 Val Ala Val Pro Ala Thr Ala Asn Ala Asp Pro Glu Pro Ala Pro  
 Pro Val Pro Thr Thr Ala Ala Ser Pro Pro Ser Thr Ala Ala Ala  
 5 Pro Pro Ala Pro Ala Thr Pro Val Ala Pro Pro Pro Pro Ala Ala  
 Ala Asn Thr Pro Asn Ala Gln Pro Gly Asp Pro Asn Ala Ala Pro  
 Pro Pro Ala Asp Pro Asn Ala Pro Pro Pro Pro Val Ile Ala Pro  
 Asn Ala Pro Gln Pro Val Arg Ile Asp Asn Pro Val Gly Gly Phe  
 Ser Phe Ala Leu Pro Ala Gly Trp Val Glu Ser Asp Ala Ala His  
 10 Phe Asp Tyr Gly Ser Ala Leu Leu Ser Lys Thr Thr Gly Asp Pro  
 Pro Phe Pro Gly Gln Pro Pro Pro Val Ala Asn Asp Thr Arg Ile  
 Val Leu Gly Arg Leu Asp Gln Lys Leu Tyr Ala Ser Ala Glu Ala  
 Thr Asp Ser Lys Ala Ala Ala Arg Leu Gly Ser Asp Met Gly Glu  
 Phe Tyr Met Pro Tyr Pro Gly Thr Arg Ile Asn Gln Glu Thr Val  
 15 Ser Leu Asp Ala Asn Gly Val Ser Gly Ser Ala Ser Tyr Tyr Glu  
 Val Lys Phe Ser Asp Pro Ser Lys Pro Asn Gly Gln Ile Trp Thr  
 Gly Val Ile Gly Ser Pro Ala Ala Asn Ala Pro Asp Ala Gly Pro  
 Pro Gln Arg Trp Phe Val Val Trp Leu Gly Thr Ala Asn Asn Pro  
 Val Asp Lys Gly Ala Ala Lys Ala Leu Ala Glu Ser Ile Arg Pro  
 20 Leu Val Ala Pro Pro Pro Ala Pro Ala Pro Ala Pro Ala Glu Pro  
 Ala Pro Ala Pro Ala Pro Ala Gly Glu Val Ala Pro Thr Pro Thr  
 Thr Pro Thr Pro Gln Arg Thr Leu Pro Ala

3. Hybrid protein comprising at least a portion of one of  
 the sequences SEQ ID N°2 or SEQ ID N°3 according to one of claims  
 1 and 2 and a sequence of a peptide or a protein able to induce

an immune response.

4. Protein according to claim 3, characterized in that the immune response is a humoral response and/or a cellular response.

5. Protein according to one of claims 3 and 4 characterized in that the peptide or the protein is a portion, in particular an epitope, of diphtheria toxin, tetanus toxin, the HBS antigen of the HBV virus, or the VP1 antigen of the poliomyelitis virus or any other viral toxin or antigen.

10 6. Oligonucleotide coding for a protein according to one of claims 1 to 5.

7. DNA according to claim 6 characterized in that it has at least a portion of the sequence SEQ ID N°1 following:

15 GT GCTCGGGCCC AACGGTGCGG GCAAGTCCAC CGCCCTGCAT GTTATCGCGG  
GGCTGCTTCG CCCCCGACGC GGGCTTGTA CGTTTGGGGG ACCGGGTGTT  
GACCGACACC GAGGCCGGGG TGAATGTGGC GACCCACGAC CGTCGAGTCG  
GGCTGCTGTT GCAAGACCCG TTGTTGTTTC CACACCTGAG CGTGGCCAAA  
AACGTGGCCT TCGGACCACA ATGCCGTCCG GGGATGTTTG GGTCCGGGCG  
CGCGCTAGGA CAAGGGCGTC GGCACGCGA TGGCTGCGCG AGGTGAACGC  
20 CGAGCAGTTC GCCGACCGTA AGCCTCGTCA GCTATCCGGG GGCCAAGCCC  
AGCGCGTCGC CATCGCGCGA GCGTTGGCGG CCGAACCGGA TGTGTTGCTG  
CTCGACGAGC CGCTGACCGG ACTCGATGTG GCCGCGGCCG CGGGTATCCG  
TTCGGTGTTG CGTAGTGTCG TCGCGAGGAG CGGTTGCGCG GTAGTCCTGA  
CGACCCATGA CCTGCTGGAC GTGTTACGC TGGCCGACCG GGTATTGGTG  
25 CTCGAGTCCG GCACGATCGC CGAGATCGGC CCGGTTGCCG ATGTGCTTAC

CGCACCTCGC AGTCGTTTCG GAGCCCGTAT CGCCGGAGTC AACCTGGTCA  
ATGGGACCAT TGGTCCGGAC GGCTCGCTGC GCACCCAGTC CGGCGCCCAC  
TGGTACGGCA CCCCAGTCCA GGATTTCCT ACTGGGCATG AGGCAATCGC  
GGTGTTCCTG CCGACGGCGG TGGCGGTGTA TCCGGAACCG CCGCACGGAA  
5 GCGCGCGCAA TATCGTCGGG CTGACGGTGG CGGAGGTGGA TACCCGCGGA  
CCCACGGTCC TGGTGCGCGG GCATGATCAG CCTGGTGGCG CGCCTGGCCT  
TCCCGCATGC ATCACCGTCG ATGCCGCCAC CGAACTGCGT GTGGCGCCCCG  
GATCGCGCGT GTGGTTCAGC GTCAAGGCGC AGGAAGTGGC CCTGCACCCG  
GCACCCACAC AACACGCCAG TTCATGAGCC GACCCGCGCC GTCCTTGCGT  
10 CGCGCCGTTA ACACGGTAGG TTCTTCGCCA TGCATCAGGT GGACCCCAAC  
TTGACACGTC GCAAGGGACG ATTGGCGGCA CTGGCTATCG CGGCGATGGC  
CAGCGCCAGC CTGGTGACCG TTGCGGTGCC CGCGACCGCC AACGCCGATC  
CGGAGCCAGC GCCCCCGGTA CCCACAACGG CCGCCTCGCC GCCGTGACCG  
GCTGCAGCGC CACCCGCACC GGCGACACCT GTTGCCCCCC CACCACCGGC  
15 CGCCGCCAAC ACGCCGAATG CCCAGCCGGG CGATCCCAAC GCAGCACCTC  
CGCCGGCCGA CCCGAACGCA CCGCCGCCAC CTGTCAATTGC CCCAAACGCA  
CCCCAACCTG TCCGGATCGA CAACCCGGTT GGAGGATTCA GCTTCGCGCT  
GCCTGCTGGC TGGGTGGAGT CTGACGCCGC CCACTTCGAC TACGGTTCAG  
CACTCCTCAG CAAAACCACC GGGGACCCGC CATTTCCCGG ACAGCCGCCG  
20 CCGGTGGCCA ATGACACCCG TATCGTGCTC GGCCGGCTAG ACCAAAAGCT  
TTACGCCAGC GCCGAAGCCA CCGACTCCAA GGCCGCGGCC CGGTGGGGCT  
CGGACATGGG TGAGTTCTAT ATGCCCTACC CGGGCACCCG GATCAACCAG  
GAAACCGTCT CGCTCGACGC CAACGGGGTG TCTGGAAGCG CGTCGTATTA  
CGAAGTCAAG TTCAGCGATC CGAGTAAGCC GAACGGCCAG ATCTGGACGG  
25 GCGTAATCGG CTCGCCCCGCG GCGAACGCAC CGGACGCCGG GCCCCCTCAG

CGCTGGTTTG TGGTATGGCT CGGGACCGCC AACAACCCGG TGGACAAGGG  
CGCGGCCAAG GCGCTGGCCG AATCGATCCG GCCTTTGGTC GCCCCGCCGC  
CGGCGCCGGC ACCGGCTCCT GCAGAGCCCG CTCCGGCGCC GCGCCGGCC  
GGGGAAGTCG CTCCTACCCC GACGACACCG ACACCGCAGC GGACCTTACC  
5 GGCCTGACC

8. Microorganism producing a protein according to one of claims 1 to 5.

10 9. Microorganism according to claim 8, characterized in that said protein is present at least in part on its surface.

10. Microorganism according to claim 9, characterized in that it is a bacterium.

15 11. Microorganism according to one of claims 8 to 10, characterized in that it is a mycobacterium, in particular M. bovis BCG.

12. Pharmaceutical composition comprising an effective quantity of a protein or a microorganism according to one of claims 1 to 5 and 8 to 11 in combination with pharmaceutically compatible diluents or adjuvants.

20 13. Drug or vaccine comprising a protein or a microorganism according to one of claims 1 to 5 and 8 to 11.

25 14. Process for detecting specific tuberculosis antibodies, in which a biological fluid, liable to contain said antibodies, is brought into contact with a protein according to one of claims 1 to 5.

15. Process according to claim 14, characterized in that said proteins are fixed on a support.

5 16. Assay kit for implementing the process according to one of claims 14 and 15, comprising at least a protein preparation according to one of claims 1 to 5 and buffer solutions for using the process.

17. Kit according to claim 16 characterized in that it comprises a reagent for revealing the antibody-protein complex formed.

10 18. Antibody reacting specifically with a protein according to one of claims 1 to 5.